

# CARDIAC FAILURE

## Definition

Cardiac/Heart failure, sometimes known as congestive heart failure (CHF), occurs when your heart muscle doesn't pump blood as well as it should. Conditions such as narrowed arteries in your heart (coronary artery disease) or high blood pressure gradually leave your heart too weak or stiff to fill and pump efficiently.

Not all conditions that lead to heart failure can be reversed, but treatments can improve the signs and symptoms of heart failure and help you live longer. Lifestyle changes, such as exercising, reducing salt in your diet, managing stress and especially losing weight, can improve your quality of life.

The best way to prevent heart failure is to control conditions that cause heart failure, such as coronary artery disease, high blood pressure, diabetes or obesity.

## Symptoms

Heart failure can be ongoing (chronic) or your condition may start suddenly (acute).

Heart failure symptoms

- Shortness of breath (dyspnea) when you exert yourself or when you lie down.
- Fatigue and weakness.
- Swelling (edema) in your legs, ankles and feet.
- Rapid or irregular heartbeat.
- Reduced ability to exercise.
- Swelling of your abdomen (ascites).
- Sudden weight gain from fluid retention.
- Lack of appetite and nausea.
- Difficulty concentrating or decreased alertness.
- Sudden, severe shortness of breath and coughing up pink, foamy mucus.
- Persistent cough or wheezing with white or pink blood-tinged phlegm.
- Increased need to urinate at night.
- Elevated blood pressure.
- Chest pain, if your heart failure is caused by a heart attack.

## When to see a doctor

See your doctor if you think you might be experiencing signs or symptoms of heart failure. Seek emergency treatment if you experience any of the following:

- Chest pain
- Fainting or severe weakness
- Rapid or irregular heartbeat associated with shortness of breath, chest pain or fainting.
- Sudden, severe shortness of breath and coughing up pink, foamy mucus.

Although these signs and symptoms may be due to heart failure, there are many other possible causes, including other life-threatening heart and lung conditions.

Don't try to diagnose yourself. Call 10111 or your local emergency number for immediate help. Emergency room health care providers will try to stabilize your condition and determine if your symptoms are due to heart failure or something else.

If you have a diagnosis of heart failure and if any of the symptoms suddenly become worse or you develop a new sign or symptom, it may mean that existing heart failure is getting worse or not responding to treatment. Contact your doctor promptly.

## Causes

Heart failure often develops after other conditions have damaged or weakened your heart. Over time, the heart can no longer keep up with the normal demands placed on it to pump blood to the rest of your body. The main pumping chambers of your heart (the ventricle) may become stiff and not fill properly between beats. Also, your heart muscle may weaken, and the ventricles stretch (dilate) to the point that the heart can't pump blood efficiently throughout your body. The term "congestive heart failure" comes from blood backing up into — or congesting — the liver, abdomen, lower extremities and lungs. However, not all heart failure is congestive. You might have shortness of breath or weakness due to heart failure and not have any fluid building up.

Heart failure can involve the left side, right side or both sides of your heart. Typically, heart failure begins with the left side — specifically the left ventricle, your heart's main pumping chamber.

Type of heart failure	Description
Left-sided heart failure	Fluid may back up in your lungs, causing shortness of breath.
Right-sided heart failure	Fluid may back up into your abdomen, legs and feet causing swelling.
Systolic heart failure	The left ventricle can't contract vigorously, indicating a pumping problem.
Diastolic heart failure (also called heart failure with normal ejection fraction)	The left ventricle can't relax or fill fully, indicating a filling problem.

Any of the following conditions can damage or weaken your heart and can cause heart failure. Some of these can be present without your knowing it:

- **Coronary artery disease and heart attack:** Coronary artery disease is the most common form of heart disease and the most common cause of heart failure. Over time, arteries that supply blood to your heart muscle narrow from a build-up of fatty deposits, a process called atherosclerosis. Blood moves slowly through narrowed arteries, leaving some areas of your heart muscle weak and chronically deprived of oxygen-rich blood. In some cases, the blood flow to the muscle is just enough to keep the muscle alive but not functioning well. A heart attack occurs if plaques formed by the fatty deposits in your arteries rupture. This causes a blood clot to block blood flow to an area of the heart muscle, weakening the heart's pumping ability and often leaving permanent damages.
- **High blood pressure (hypertension):** Blood pressure is the force of blood pumped by your heart through your arteries. If your blood pressure is high, your heart must work harder than it should to circulate blood throughout your body.
- **Over time, the heart muscle may become thicker to compensate for the extra work it must perform.** Eventually, your heart muscle may become either too stiff or too weak to effectively pump blood.
- **Faulty heart valves:** The valves of your heart keep blood flowing in the proper direction through the heart. A damaged valve, due to a heart defect, coronary artery disease or heart infection, forces your heart to work harder to keep blood flowing as it should. Over time, this extra work can weaken your heart. Faulty heart valves, however, can be fixed or replaced if found in time.
- **Damage to the heart muscle (cardiomyopathy):** Some of the many causes of heart muscle damage

(cardiomyopathy) include infections, alcohol abuse, and the toxic effect of drugs such as cocaine or some drugs used for chemotherapy. Genetic factors play an important role in two common types of cardiomyopathy. One is hypertrophic cardiomyopathy — a condition of abnormally thick heart muscle. The other is dilated cardiomyopathy — a condition where the heart muscle is weak and the heart enlarges.

- **Myocarditis:** Myocarditis is an inflammation of the heart muscle. It's most commonly caused by a virus and can lead to left-sided heart failure.
- **Heart defects you're born with (congenital heart defects):** If your heart and its chambers or valves haven't formed correctly, the healthy parts of your heart must work harder to pump blood through your heart, which in turn may lead to heart failure.
- **Abnormal heart rhythms (heart arrhythmias):** Abnormal heart rhythms may cause your heart to beat too fast. This creates extra work for your heart. Over time, your heart may weaken, leading to heart failure. A slow heartbeat may prevent your heart from getting enough blood out to the body and may also lead to heart failure.
- **Other diseases:** Chronic diseases such as diabetes, hyperthyroidism, hypothyroidism, emphysema, or a build-up of iron (hemochromatosis) or protein (amyloidosis) also may contribute to heart failure.

Causes of acute heart failure include viruses that attack the heart muscle, severe infections, allergic reactions, blood clots in the lungs, the use of certain medications or any illness that affects the whole body.

## Risk factors

A single risk factor may be enough to cause heart failure, but a combination of factors also increases your risk.

### *Risk factors include:*

- **High blood pressure:** Your heart works harder than it must if your blood pressure is high.
- **Coronary artery disease:** Narrowed arteries may limit your heart's supply of oxygen-rich blood, resulting in weakened heart muscle.
- **Heart attack:** Damage to your heart muscle from a heart attack may mean your heart can no longer pump as well as it should.
- **Diabetes:** Having diabetes increases your risk of high blood pressure and coronary artery disease.
- **Some diabetes medications:** The diabetes drugs rosiglitazone (Avandia) and pioglitazone (Actos) have been found to increase the risk of heart failure. Don't stop taking these medications on your own, though. If you're taking them, discuss with your doctor whether you need to make any changes.

- Sleep apnea: The inability to breathe properly at night results in low blood oxygen levels and increased risk of abnormal heart rhythms. Both problems can weaken the heart.
- Congenital heart defects: Some people who develop heart failure were born with structural heart defects.
- Viruses: A viral infection may have damaged your heart muscle.
- Alcohol use: Drinking too much alcohol can weaken heart muscle and lead to heart failure.
- Irregular heartbeats: These abnormal rhythms, especially if they are very frequent and fast, can weaken the heart muscle and cause heart failure.

## Complications

If you have heart failure, your outlook depends on the cause and the severity, your overall health, and other factors such as your age. Complications can include:

- Kidney damage or failure: Heart failure can reduce the blood flow to your kidneys, which can eventually cause kidney failure if left untreated. Kidney damage from heart failure can require dialysis for treatment.
- Heart valve problems: The valves of your heart, which keep blood flowing in the proper direction through your heart, may not function properly if your heart is enlarged, or if the pressure in your heart is very high due to heart failure.
- Liver damage: Heart failure can lead to a build-up of fluid that put too much pressure on the liver. This fluid backup can lead to scarring, which makes it more difficult for your liver to function properly.
- Stroke: Because blood flow through the heart is slower in heart failure than in a normal heart, it's more likely you'll develop blood clots, which can increase your risk of having a stroke.

Some people's symptoms and heart function will improve with proper treatment. However, heart failure can be life-threatening. People with heart failure may have severe symptoms, and some may require heart transplantation or support with an artificial heart device.

## Treatments and drugs

- Heart failure is a chronic disease needing lifelong management. However, with treatment, signs and symptoms of heart failure can improve and the heart sometimes becomes stronger. Treatment may help you live longer and reduce your chance of dying suddenly. Doctors sometimes can correct heart failure by treating the underlying cause. For example, repairing a heart valve or controlling a fast heart rhythm may reverse

heart failure. But for most people, the treatment of heart failure involves a balance of the right medications, and in some cases, devices that help the heart beat and contract properly.

## Medications

Doctors usually treat heart failure with a combination of medications. Depending on your symptoms, you might take one or more of these drugs. They include:

- Angiotensin-converting enzyme (ACE) inhibitors
- Beta blockers
- Angiotensin II receptor blockers
- Digoxin (Lanoxin)
- Diuretics
- Aldosterone antagonists
- Inotropes

You'll probably need to take two or more medications to treat heart failure. Your doctor may prescribe other heart medications as well - such as nitrates for chest pain, a statin to lower cholesterol or blood-thinning medications to help prevent blood clots - along with heart failure medications.

You may be hospitalized if you have a flare-up of heart failure symptoms. While in the hospital, you may receive additional medications to help your heart pump better and relieve your symptoms. You may also receive supplemental oxygen through a mask or small tubes placed in your nose. If you have severe heart failure, you may need to use supplemental oxygen long term.

## Surgery and medical devices

In some cases, doctors recommend surgery to treat the underlying problem that led to heart failure. Some treatments being studied and used in certain people include:

- Coronary bypass surgery.
- Heart valve repair or replacement.
- Implantable cardioverter-defibrillators (ICDs).
- Cardiac resynchronization therapy (CRT), or biventricular pacing.

Heart pumps (left ventricular assist devices, or LVADs).

These mechanical devices are implanted into the abdomen or chest and attached to a weakened heart to help it pump. Doctors first used heart pumps to help keep heart transplant candidates alive while they waited for a donor heart.

LVADs are now sometimes used as an alternative to transplantation. Implanted heart pumps can significantly extend and improve the lives of some people with severe heart failure who aren't eligible for or able to undergo heart transplantation or are waiting for a new heart.

- Heart transplant: Some people have such severe heart failure that surgery or medications don't help. They may need to have their diseased heart replaced with a healthy donor heart. Heart transplants can dramatically improve the survival and quality of life of some people with severe heart failure. However, candidates for transplantation often have to wait a long time before a suitable donor heart is found. Some transplant candidates improve during this waiting period through drug treatment or device therapy and can be removed from the transplant waiting list.

### End-of-life care and heart failure

Even with the number of treatments available for heart failure, it's possible that your heart failure may worsen to the point where medications are no longer working and a heart transplant or device isn't an option, and you may need to enter hospice care. Hospice care provides a special course of treatment to terminally ill people.

Hospice care allows family and friends — with the aid of nurses, social workers and trained volunteers — to care for and comfort a loved one at home or in hospice residences. It also provides emotional, social and spiritual support for people who are ill and those closest to them. Although most people under hospice care remain in their own homes, the program is available anywhere — including nursing homes and assisted living centers. For people who stay in a hospital, specialists in end-of-life care can provide comfort, compassionate care and dignity.

- Although it can be difficult, discuss end-of-life issues with your family and medical team. Part of this discussion will likely involve advance directives — a general term for oral and written instructions you give concerning your medical care should you become unable to speak for yourself. If you have an implantable cardioverter-defibrillator (ICD), one important consideration to discuss with your family and doctors is turning off the defibrillator so that it can't deliver shocks to make your heart continue beating.

### Lifestyle and home remedies

Making lifestyle changes can often help relieve signs and symptoms of heart failure and prevent the disease from worsening. These changes may be among the most important and beneficial you can make:

- Stop smoking: Smoking damages your blood vessels, raises blood pressure, reduces the amount of oxygen in your blood and makes your heart beat faster. You can't be considered for a heart transplant if you continue to smoke. Avoid second-hand smoke too.
- Weigh yourself daily: Do this every morning after you've urinated, but before you've had breakfast. Notify your doctor if you have a weight gain of 5 pounds (2.3

kilograms) or more in a week. It may mean that you're retaining fluids and need a change in your treatment plan. Record your weight every morning and bring your record with to your doctor's visits.

- Restrict salt in your diet. Too much sodium contributes to water retention, which makes your heart work harder and causes shortness of breath and swollen legs, ankles and feet. For people with heart failure, the daily recommended amount of dietary sodium is generally less than 2,000 milligrams — check with your doctor for the restriction recommended for you. Keep in mind that most of this salt is already added to prepared foods, and be careful when using salt substitutes.
- Maintain a healthy weight. If you're overweight, your dietitian will help you work toward your ideal weight. Even losing a small amount of weight can help.
- Limit fats and cholesterol. In addition to avoiding high-sodium foods, limit the amount of saturated fat, trans-fat and cholesterol in your diet. A diet high in fat and cholesterol is a risk factor for coronary artery disease, which often underlies or contributes to heart failure.
- Limit alcohol and fluids: Your doctor likely will recommend that you don't drink alcohol if you have heart failure, since it can interact with your medication, weaken your heart muscle and increase your risk of abnormal heart rhythms. If you have severe heart failure, your doctor may also suggest you limit the amount of fluids you drink.
- Be active. Moderate aerobic activity helps keep the rest of your body healthy and conditioned, reducing the demands on your heart muscle. Before you start exercising though, talk to your doctor about an exercise program that's right for you. Your doctor may suggest a walking program. Check with your local hospital to see if it offers a cardiac rehabilitation program; if it does, talk to your doctor about enrolling in the program.
- Reduce stress. When you're anxious or upset, your heart beats faster, you breathe more heavily and your blood pressure often goes up. This can make heart failure worse, since your heart is already having trouble meeting the body's demands. Find ways to reduce stress in your life. To give your heart a rest, try napping or putting your feet up when possible.
- Sleep easy. If you're having shortness of breath, especially at night, sleep with your head propped up at a 45-degree angle using a pillow or a wedge. If you snore or have had other sleep problems, make sure you get tested for sleep apnea.

To improve your sleep at night, prop up your head with pillows and avoid big meals right before bedtime. Also, discuss with your doctor changing the time for taking medications, especially diuretics. Taking diuretics earlier in the day may decrease the need to urinate as often during the night.

The key to preventing heart failure is to reduce your risk factors. You can control or eliminate many of the risk factors for heart disease — high blood pressure and coronary artery disease, for example — by making lifestyle changes along with the help of any needed medications.

## Prevention

Lifestyle changes you can make to help prevent heart failure include:

- Not smoking.
- Controlling certain conditions, such as high blood pressure, high cholesterol and diabetes.
- Staying physically active.
- Eating healthy foods.
- Maintaining a healthy weight.
- Reducing and managing stress.

## Coping and support

- Although many cases of heart failure can't be reversed, treatment can sometimes improve symptoms and help you live longer. You and your doctor can work together to help make your life more comfortable. Pay attention to your body and how you feel, and tell your doctor when you're feeling better or feeling worse. This way, your doctor will know what treatment works best for you.
- Don't be afraid to ask your doctor questions about living with heart failure. These steps can help you work most effectively with your doctor:
  - Keep track of the medications you take. Make a list and share it with any new doctors treating you. Carry the list with you all the time.
  - Avoid certain over-the-counter medications. Non-steroidal anti-inflammatory drugs (ibuprofen, naproxen, others), cold medications and diet pills may worsen heart failure and lead to fluid built-up.
  - Be careful about supplements. Some dietary supplements may interfere with heart failure medications or could worsen your condition. Talk to your doctor about any *supplements you are taking*.
  - Keep track of your weight and bring the record to visits with your doctor. An increase in weight can be a sign you're building up fluids. Your doctor may tell you to take extra diuretics if your weight has increased more than a pound (0.5 kilograms) or so in a day.
  - Keep track of your blood pressure. Consider purchasing a home blood pressure monitor. Keep track of your blood pressure between doctor appointments and bring the record with you to visits.

- Write down your questions. Before a doctor appointment, prepare a list of any questions or concerns. For example, is it safe for you and your partner to have sex? Most people with heart failure can continue sexual activity once symptoms are under control.
- Ask for clarification. Make sure you understand what your doctor is saying.

Managing heart failure requires an open dialogue between you and your doctor. Be honest about whether you're following recommendations concerning your diet, lifestyle and taking medications. Your doctor often can suggest strategies to help you get and stay on track.

*Source: The Mayo Clinic*

## Contact us

Please feel free to contact your Aon Healthcare Consultant if you have any concerns. You may also contact the **Aon Resolution Centre on 0860 835 272 or e-mail: [arc@aon.co.za](mailto:arc@aon.co.za)** for further information.

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